

Application No. 10/657,181
Amendment dated February 28, 2006
Reply to Office Action of November 30, 2005

Docket No.: 2519-0122PUS1

AMENDMENTS TO THE DRAWINGS

Attached hereto is one (1) sheet of corrected drawings that comply with the provisions of 37 C.F.R. § 1.84. The corrected drawings incorporate the following drawing changes:

Fig. 6 has been presented.

It is respectfully requested that the corrected drawings be approved and made a part of the record of the above-identified application.

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REMARKS

Claims 1-7, 9-17, and 19-21 are now present in this application.

The specification and claims 1, 9, 10 and 19 have been amended. Reconsideration of the application, as amended, is respectfully requested.

The drawings stand objected to under 37 CFR 1.83(a). The Examiner has required that the "microchip control unit" discussed in claim 3 be shown in the drawings. Accordingly, attached hereto is a proposed Fig. 6, showing this feature. Because support for this diagram can be found in originally filed claim 3 and in paragraph [0016] of the originally filed specification, it is respectfully submitted that no new matter is present. Reconsideration and withdrawal of any objection to the drawings are requested.

Claims 1, 4, 7 and 9 stand rejected under 35 USC 102(b) as being anticipated by Seong, U.S. Patent 5,606,296. This rejection is respectfully traversed.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

The purpose of the present invention is to fix the frequency of the output PWM signal (see page 2, lines 21-23) for providing a relatively high frequency, such as 10 kHz or more, to operate the fan motor 12 to avoid the noise. According to the present invention, a PWM buffer circuit 20 is arranged between the PWM signal generation unit 10 and the driving circuit 11 to transfer the PWM signal S1 to a PWM signal S2 with a fixed frequency that is determined by the

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PWM buffer circuit 20. Therefore, the PWM buffer circuit 20 includes a duty cycle converting circuit and a frequency-fixed PWM signal generating circuit. The duty cycle converting circuit may receive a first PWM signal and then generate a duty cycle reference voltage based on a duty cycle of the first PWM signal. The frequency-fixed PWM signal generating circuit may receive the duty cycle reference voltage and then output a PWM signal having a fixed frequency. In other words, the second PWM signal is generated based on the first PWM signal.

However, in Seong, the pulse width modulating means 300 includes a first error amplifier 301 for receiving an output voltage V_o and a reference voltage V_{ref} and a comparator 302 for receiving the output of the error amplifier 301 and the sawtooth voltage V_{TR} generated from the sawtooth oscillating means 100 to modulate a pulse width. Seong only teaches to maintain the voltage amplitude ΔV of the sawtooth wave so as to reach the system optimization, as shown in the figure 4A to 4C. Seong does not teach that the output voltage V_o is a PWM signal. In other words, Seong does not teach to form a PWM signal based on another PWM signal.

It is therefore respectfully submitted that circuit of independent claim 1, as well as its dependent claims, is neither taught nor suggested by Seong. Accordingly, reconsideration and withdrawal of the 35 USC 102(b) rejection are respectfully requested.

Claims 3, 13 and 20 stand rejected under 35 USC 103 as being unpatentable over Seong. This rejection is respectfully traversed.

Claims 6, 10, 11, 14, 16, 17, 19 and 21 stand rejected under 35 USC 103 as being unpatentable over Seong in view of the Hoffman, U.S. Patent 5,457,435. This rejection is respectfully traversed.

The circuit set forth in independent claims 10, 20 and 21 includes a PWM buffer circuit 20 that includes a duty cycle converting circuit and a frequency-fixed PWM signal generating

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circuit. The duty cycle converting circuit may receive a first PWM signal and then generate a duty cycle reference voltage based on a duty cycle of the first PWM signal. The frequency-fixed PWM signal generating circuit may receive the duty cycle reference voltage and then output a PWM signal having a fixed frequency. In other words, the second PWM signal is generated based on the first PWM signal.

When resolving the issue of whether the "invention as a whole" would have been obvious under 35 USC 103, consideration must be given not only to the subject matter which is literally recited in the claims, but also to those properties of the subject matter which are inherent in the subject matter and are disclosed in the specification. *See*, M.P.E.P. 2141.02; and *In re Antonie*, 559 F.2d 618 (C.C.P.A. 1977). Consequently, the second PWM signal that has a fixed frequency and is generated based on the first PWM signal must be considered in the obviousness analysis.

The combination of references utilized by the Examiner, however, does not teach or suggest the claimed invention. In particular, Seong only teaches to generate a PWM signal with fixed voltage amplitude ΔV . Seong does not, however, teach or suggest to generate a PWM signal with fixed frequency. The Examiner's attention is drawn to Figures 4A to 4C. Moreover, Seong also does not teach the output voltage V_o is a PWM signal. Consequently, when the PWM means of Seong is used in the claimed invention, a PWM signal with fixed voltage amplitude ΔV is generated, which is contrary to, and can not reach the purpose of the claimed invention.

The secondary reference to Hoffman fails to overcome the deficiencies of the primary reference.

In view of the foregoing, it is respectfully submitted that the circuit of independent claims 1, 10, 20 and 21, as well as their dependent claims, are neither taught nor suggested by the prior

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art utilized by the Examiner. Accordingly, reconsideration and withdrawal of the 35 USC 103 rejection are respectfully requested.

It is noted that the Examiner has withdrawn his previous indication of allowability of claims 3 and 13. Applicants, however, gratefully acknowledge that the Examiner considers claims 2, 5, 12, and 15 to contain allowable subject matter. In view of the foregoing amendments and remarks, it is respectfully submitted that all claims should now be in condition for allowance.

Favorable reconsideration and an early Notice of Allowance are earnestly solicited.

In the event that any outstanding matters remain in this application, the Examiner is invited to contact the undersigned at (703) 205-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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Attachments